## REMARKS

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

Upon entry of this amendment, claims 1-3 and 5-9 will be pending. By this amendment, claim 4 has been canceled; claims 1, 2, 5, and 6 have been amended; and claims 7-9 have been added.

§103 Rejection of Claims 1-3 and 5

In Section 3 of the Office Action, claims 1-3 and 5 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Fazel *et al.* (U.S. Patent No. 6,275,506; hereafter referred to as "Fazel") in view of Shelswell *et al.* (U.S. Patent No. 5,610,908; hereafter referred to as "Shelswell"). Independent claims 1 and 5 have been amended to address the rejection.

In the Background section of the Specification, it was stated "when signals in a channel are all 1-segment signals, because all the 13 segments have the same segment number, initial values for the PRBS code sequences also become the same and phases of the pilot signals CP and SP in all 13 segments become the same as well. In addition, the transmission control signal TMCC and the additional information AC1 and AC2 when not modulated also have equal phases in all the 13 segments. From this, when viewing the entire signals in a channel, because there are many groups of carriers having the same phases, there arises a disadvantage that the possibility of occurrence of peaks in a transmission signal is high, and it is difficult to secure the dynamic range of the front-end amplifier in a receiver." *Background of the Specification, page 5, line 18 to page 6, line 7.*

To address the above-described problems of the conventional digital broadcasting, it is "an object to provide a digital broadcasting apparatus able to suppress an increase of a dynamic range of a broadcasting signal by controlling the carrier phases of signals in digital terrestrial broadcasting in accordance with the frequencies of the transmission channels." *Specification, page 6, lines 11-16.* To achieve this objective, embodiments of the present invention include apparatus and method for generating a digital broadcasting signal based on data of source information and modulating the same to a predetermined broadcasting frequency for output.

For example, the structure of apparatus claim 1, as presented herein, includes:

> "*a sub-signal generating circuit* for generating a sub-signal for controlling signal transmission;
>
> *a random sequence generating circuit* for generating a pseudo-random sequence using an initial value of a random number code set based on said broadcasting frequency;
>
> *a sub-signal modulating circuit* for modulating the sub-signal using the pseudo-random sequence generated by the random sequence generating circuit; and
>
> *a modulating circuit* for performing modulation according to a predetermined modulation scheme using a main signal generated based on the data of source information and output signal of the sub-signal modulating circuit,
>
> *wherein* a bandwidth of said broadcasting frequency is divided into a plurality of channels with each channel of said plurality of channels being assigned a predetermined channel number, and
>
> *wherein* said random sequence generating circuit sets an initial value of a random number code for generating said pseudo-random sequence based on said channel number."

(emphasis added)

In summary, the structure of claim 1 is configured to control initial values of pseudo-random sequences, and to control parameters in frequency interleaving by dividing a bandwidth of the broadcasting frequency into a plurality of channels with each channel being assigned a

predetermined channel number, and setting an initial value of a random number code for generating the pseudo-random sequence based on the channel number. This limitation substantially includes allowable subject matter of claim 4.

By contrast, Fazel discloses a mixed FDMA/TDMA method enabling radio transmission between subscriber stations without a central station including configuration of frames, time slots, and a communication procedure. Further, Shelswell discloses a digital signal transmission system in which a modulated signal such as an OFDM signal is limited in t a time domain and adjusted in a frequency domain, thereby reducing the peak amplitude or power of the signal. Thus, Fazel and Shelswell, individually or in combination, fail to teach or suggest all the limitations of claim 1, as presented herein.

Based on the foregoing discussion, claim 1 should be allowable over Fazel and Shelswell. Furthermore, since independent claim 5 closely parallels, and includes substantially similar limitations as recited in, independent claim 1, claim 5 should also be allowable over Fazel and Shelswell. Claim 5 also includes the allowable subject matter of claim 4. Since claims 2 and 3 depend from claim 1, claims 2 and 3 should also be allowable over Fazel and Shelswell.

Accordingly, it is submitted that the rejection of claims 1-3 and 5 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§ 103 Rejection of Claim 6

In Section 4 of the Office Action, claim 6 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Fazel in view of Shelswell, and further in view of Nakagawa *et al.* (U.S. Patent No. 6,256,508; hereafter referred to as "Nakagawa").

Based on the foregoing discussion regarding claim 5, and since claim 6 depends from claim 5, claim 6 should be allowable over Fazel and Shelswell. Further, Nakagawa merely discloses dividing one broadcasting channel into two frequency ranges for wide area broadcasting in which OFDM is applied, and for local area broadcasting in which FDMA/TDMA is applied, to prevent occurrence of frequency interference. Therefore, claim 6 should be allowable over Fazel, Shelswell, and Nakagawa.

Accordingly, it is submitted that the rejection of claim 6 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

Newly-added Claims 7-9

Based on the foregoing discussion, and since claims 7 and 8 depend from allowable claim 1, and since claim 9 is an independent method claim that closely parallels, and includes substantially similar limitations as recited in, independent claim 1, and that includes the allowable subject matter of claim 4, claims 7-9 should be allowable over the cited prior art references.

Conclusion

In view of the foregoing, entry of this amendment, and the allowance of this application with claims 1-3 and 5-9 are respectfully solicited.

In regard to the claims amended herein and throughout the prosecution of this application, it is submitted that these claims, as originally presented, are patentably distinct over the prior art of record, and that these claims were in full compliance with the requirements of 35

U.S.C. §112. Changes that have been made to these claims were not made for the purpose of patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes were made simply for clarification and to round out the scope of protection to which Applicant is entitled.

In the event that additional cooperation in this case may be helpful to complete its prosecution, the Examiner is cordially invited to contact Applicant's representative at the telephone number written below.

The Commissioner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account 50-0320.

Respectfully submitted,

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